# FORSPAN ASSESSMENT MODEL FOR CONTINUOUS ACCUMULATIONS--BASIC INPUT DATA FORM (Version 4, 10-5-00)

#### **IDENTIFICATION INFORMATION**

Assessment Geologist:	R.M. Flores					Date:	10/18/2000
Region:	North Americ	ca			1	Number:	5
Province:	Powder Rive	r Basin			1	Number:	5033
Total Petroleum System:.	Tertiary-Upp	er Cretaceous (	Coalbed Methan	е	1	Number:	503301
Assessment Unit:	Lower Fort U	Inion-Lance For	mations		1	Number:	50330183
Based on Data as of:	PI production	n data current th	rough third quar	ter 1999			
Notes from Assessor	Gas is bioge	nic. Mill Gillette	Field, because	of similar coa	al rank, as	an analog.	
Assessment-Unit type: What is the minimum tot: Number of evaluated cells: Number of evaluated cells Established (>24 cells > min.) Median total recovery per of	Oil (<20,000 cal recovery position in the content of the content o	erg/bo) or Gas (er cell? 0 every per cell > rontier (1-24 cells min.): (mmbo f	0.02 (m	mbo for oil A	GasU.; bcfg fc 0 /pothetical (		X
Attribute	milies.		Probability o	of occurrence	(0-1.0)		
1. <b>CHARGE:</b> Adequate pe	troleum chara	e for an unteste					1.0
2. <b>ROCKS:</b> Adequate rese							0.95
3. <b>TIMING:</b> Favorable geo							1.0
o. Immit <b>o</b> i avolablo goo	logio tilinig ioi	an antoctoa ot	m with total 1000	· · · · · · · · · · · · · · · · · · ·	G	•	
Assessment-Unit GEOLO	OGIC Probabi	lity (Product of	1, 2, and 3):			0.95	
		•	,		_		
ACCESS: Adequate loc with total reco			related activitie				1.0
NO. OF UNTEST	ED CELLS W	ITH POTENTIA	L FOR ADDITIO	NS TO RES	ERVES IN	NEXT 30 Y	EARS
Total assessment-unit	area (acres):	(uncertainty of minimum	•	median <u>4</u>	,514,000	maximum	4,965,000
Area per cell of untester (values are inherently values)	-	potential for ac		es in next 30 median	years (ac 80	res): maximum	140
3. Percentage of total ass	sessment-unit	area that is unt minimum	, , ,	ertainty of a f median		maximum	100
Percentage of untested next 30 years (%): ( a l (uncertainty of a fixed)	necessary crite		ıl recovery per ce		n)	maximum	9

#### **TOTAL RECOVERY PER CELL**

Total recovery per cell for untested cells (values are inherently variable)	having potent	ial for additions	to reserves in	next 30 ye	ars:	
(mmbo for oil A.U.; bcfg for gas A.U.)	minimum _	0.02	median_	0.085	maximum	1
		CT RATIOS FOR a fixed value)	R UNTESTED	CELLS		
Oil assessment unit:		minimum		median		maximum
Gas/oil ratio (cfg/bo)  NGL/gas ratio (bngl/mmcfg)			-		-	
Gas assessment unit:			-		-	
Liquids/gas ratio (bliq/mmcfg)	······ _	0	_	0	-	0
		RY DATA FOR rently variable)	UNTESTED	<b>CELLS</b> median		maximum
API gravity of oil (degrees)			_	median	-	maximum
Drilling depth (m)  Depth (m) of water (if applicable)	····· <u> </u>		_ _ _		-	
Gas assessment unit:		0.00		0.00		4.00
Inert-gas content (%) CO <sub>2</sub> content (%)		3.00	_	3.00 5.00	-	4.00 8.00
Hydrogen-sulfide content (%)		0.00	_	0.00	-	0.00
Drilling depth (m)	····· <u> </u>	460	-	1400	-	2500
Depth (m) of water (if applicable)	····· <u> </u>		=		-	

#### ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO STATES

Surface Allocations (uncertainty of a fixed value)

1. Wyoming	_represents	50.42	_areal % of the as	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	- -	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)		-	98	
2. Montana	represents	49.58	areal % of the ass	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	<u>-</u> -	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)		- -	2 0	
3	_represents		_areal % of the as	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	- -	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)		- -		
4	represents		_areal % of the as:	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum 	- -	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%).		-		

5	represents	areal % of the assessment unit			
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
6	represents	areal % of the assessme	ent unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
7	represents	areal % of the assessme	ent unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
8	represents	areal % of the assessme	ent unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					

#### ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES

Surface Allocations (uncertainty of a fixed value)

1. Federal Lands	represents	11.80	_areal % of the assessn	nent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			17 0	
2. Private Lands	represents	75.09	areal % of the assessn	nent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			75 0	
3. Tribal Lands	represents	6.04	_areal % of the assessn	nent unit
3. Tribal Lands  Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	_represents _ minimum	6.04	_areal % of the assessn median	maximum
Oil in oil assessment unit:  Volume % in entity		6.04	_	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)  Gas in gas assessment unit:  Volume % in entity		0.11	median	maximum
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)  Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum

5. WY State Lands	_represents	3.45	areal % of the assess	ment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			<u>6</u> 0	
6. MT State Lands	represents	3.51	areal % of the assess	ment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			1	
7	represents		areal % of the assess	ment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
8	_represents		areal % of the assess	ment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

9	represents	areal % of the assessment unit			
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
10	represents	areal % of the assessme	ent unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
11	represents	areal % of the assessme	ent unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
12	represents	areal % of the assessme	ent unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum		
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					

#### ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO FEDERAL LAND SUBDIVISIONS Surface Allocations (uncertainty of a fixed value)

Bureau of Land Management (BLM)	represents	8.90	_areal % of the assess	sment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			<u>12.82</u> 0	
2. BLM Wilderness Areas (BLMW)	represents		_areal % of the assess	sment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum 		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
3. BLM Roadless Areas (BLMR)	_represents		_areal % of the assess	sment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum 		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
National Park Service (NPS)	represents		_areal % of the assess	sment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum 		median	maximum
Gas in gas assessment unit:				

5. NPS Wilderness Areas (NPSW)	_represents		_areal % of the	assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
6. NPS Protected Withdrawals (NPSP)	_represents		_areal % of the	assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
7. US Forest Service (USFS)	_represents	2.86	_areal % of the	assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			4.12		
8. USFS Wilderness Areas (USFSW)	_represents		_areal % of the	assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					

9. USFS Roadless Areas (USFSR)	represents	areal % of the assessm	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
10. USFS Protected Withdrawals (USFSP)	represents	areal % of the assessm	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
11. US Fish and Wildlife Service (USFWS)	represents	areal % of the assessm	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
12. USFWS Wilderness Areas (USFWSW)	represents	areal % of the assessm	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%).			

13. USFWS Protected Withdrawals (USFWSP)	represents	areal % of the assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
14. Wilderness Study Areas (WS)	represents	areal % of the assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
15. Department of Energy (DOE)	represents	areal % of the assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
16. Department of Defense (DOD)	represents	areal % of the assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			

17. Bureau of Reclamation (BOR)	_represents		areal % of the	e assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
18. Tennessee Valley Authority (TVA)	_represents		_areal % of the	e assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
19. Other Federal	_represents	0.04	_areal % of the	assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			0.05		
20	represents		areal % of the	e assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					

#### ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO ECOSYSTEMS

Surface Allocations (uncertainty of a fixed value)

Bighorn Mountains (BHMT)	represents	0.84	_areal % of the asses	ssment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			0.84	
Northwestern Great Plains (NWGP)	represents	37.47	areal % of the asses	ssment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median 	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			37.47	
Powder River Basin (PRBA)	_represents	61.70	_areal % of the asses	ssment unit
3. Powder River Basin (PRBA)  Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	represents minimum	61.70	areal % of the asses median 	maximum
Oil in oil assessment unit:  Volume % in entity		61.70	_	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)  Gas in gas assessment unit:  Volume % in entity		61.70	median	maximum
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)  Gas in gas assessment unit:  Volume % in entity	minimumrepresentsminimum	61.70	median 61.70 0	maximum

5	represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
6	represents	areal % of the assessme	ent unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
7	represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
8	represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			

9.	represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
10	represents	areal % of the assessme	nt unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median 	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
11	represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)  Gas in gas assessment unit:  Volume % in entity	minimum	median	maximum
Portion of volume % that is offshore (0-100%)			
12	represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median 	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			

#### ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES

**Subsurface Allocations** (uncertainty of a fixed value)

Based on Data as of: Data through 199	98		
All Federal Subsurface represents	44 areal % of the assessn	nent unit	
	<u> </u>		
Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity			
Portion of volume % that is offshore (0-100	170)		
Gas in gas assessment unit:			
Volume % in entity	······	50	
Portion of volume % that is offshore (0-100	0%)	0	
2. Other Subsurface represents	areal % of the assessn	nent unit	
Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity			
Portion of volume % that is offshore (0-100	0%)		
Cas in ass sesseement units			
Gas in gas assessment unit:  Volume % in entity		50	
Portion of volume % that is offshore (0-100		0	